ClarIDy HF RFID USB Reader
User's Manual

M/N: HNM001

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ClarIDy Solutions, Inc.

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Change Log

Revision	Date	Author	Description
A.1	2008.07.21.	Andy Chen	Create the ClarIDy HF RFID Demo Program User's Manual.
A.2	2008.08.15.	Horng-Ji Chen	Change the control panel and add NFC file transfer functions.

Table of Contents

1. Introduction

This document describes the demo program (ClarIDy_HF_Demo.exe) for ClarIDy HF RFID Reader. The demo program provides configuration controls, "Inventory", "Block Data", and "NFC" functions. User can use this application to control the ClarIDy HF RFID Reader to communicate with ISO14443A, ISO14443B, ISO15693, and Sony FeliCa RFID tags. ClarIDy HF RFID Reader also provides NFC (Near Field Communication" functions to have contactless file transfer capability. The operational procedures are described as the following chapters.

2. Installation

2.1 Setup the USB Driver

First time using the ClarIDy's HF FRID Reader (USB Interface), you must install the driver (RFIDUSBDriver.exe).

Please directly connect the ClarIDy HF RFID Reader to the USB port of the computer, or use the UHF entension cable to connect both ClarIDy HF RFID Reader and the USB port of the computer. The Windows system will detect the ClarIDy HF RFID Reader as a new device and popup the device driver setup dialog. Please ignore and close it.

Execute the RFIDUSBDriver.exe step by step as the following figures:
1. Click "Next" from the "Installing RFID USB Driver" dialog, as figure 1.
2. Click "Next" while the "Destination Folder" was specified, as figure 2.
3. Click "Finish" to finalize the installation of the RFID USB device driver, as figure 3.
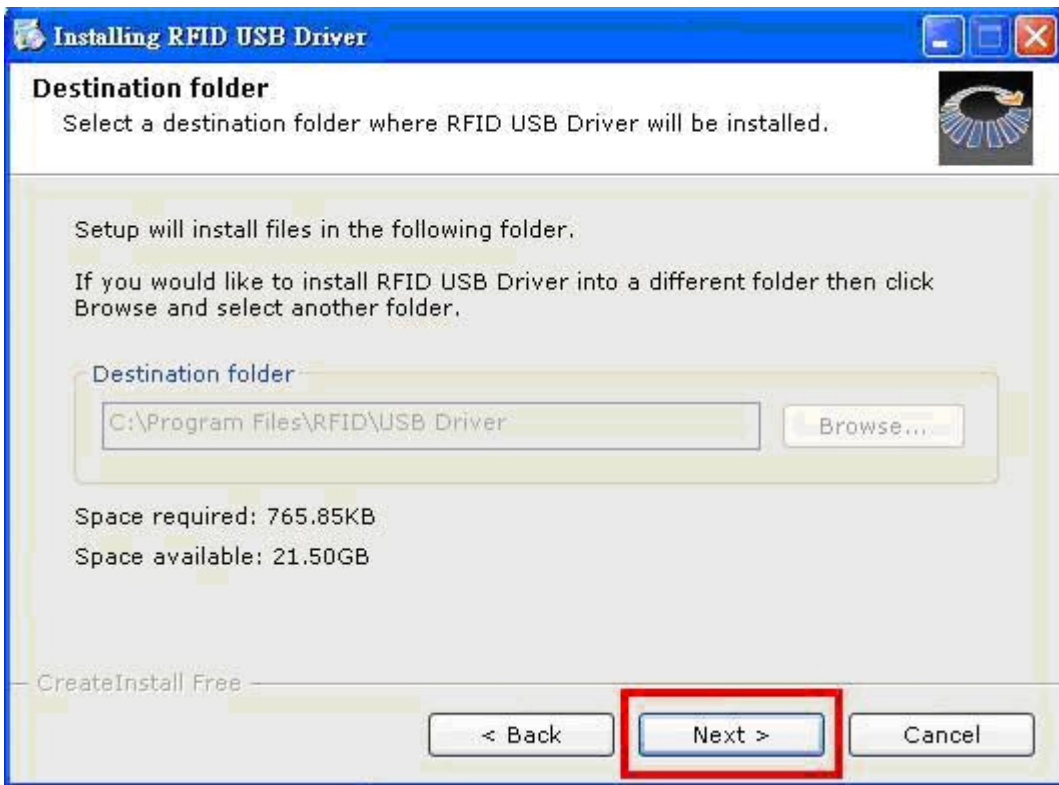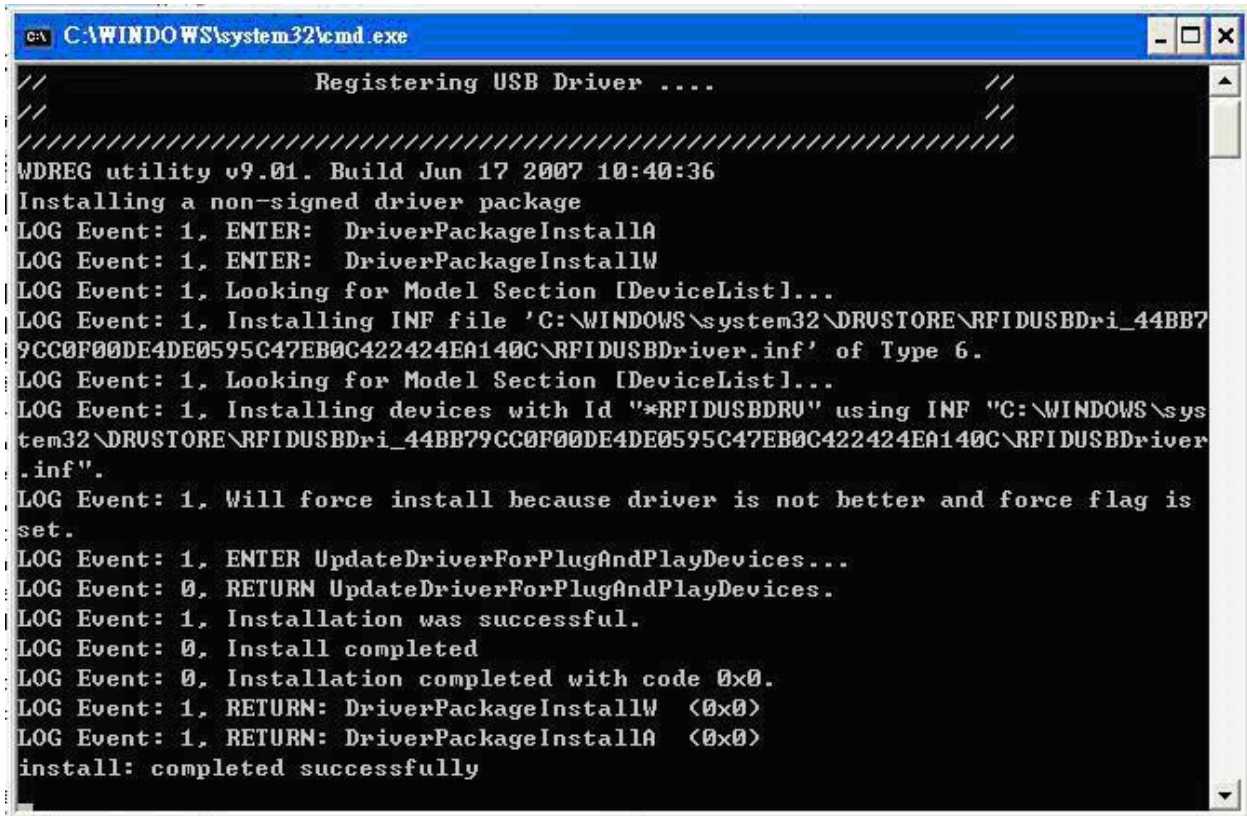4. The console window will show the installation information, as figure 4.

Figure 1

Figure 2

Figure 3

Figure 4

2.2 Setup the Demo Program

Execute the Setup.exe step by step as the following figures:

1. Click "Next" from the "ClarIDy HF Setup" dialog, as figure 5.

2. Click "Next" while the "Select Installation Folder" was specified, as figure 6.

3. Click "Next" on the "Confirm Installation", as figure 7.

4. System will show the "Installing ClarIDy HF Demo" as figure 8. While the "Installation Complete" was shown, click "Close" to finish the installation, as figure 9.
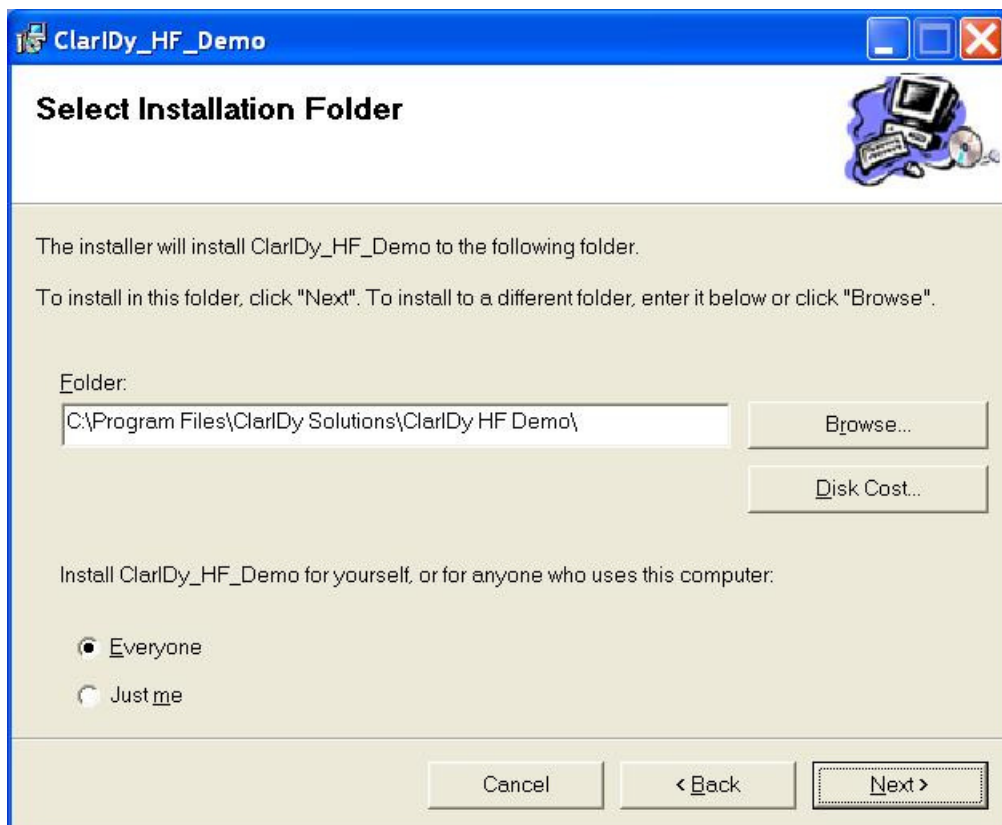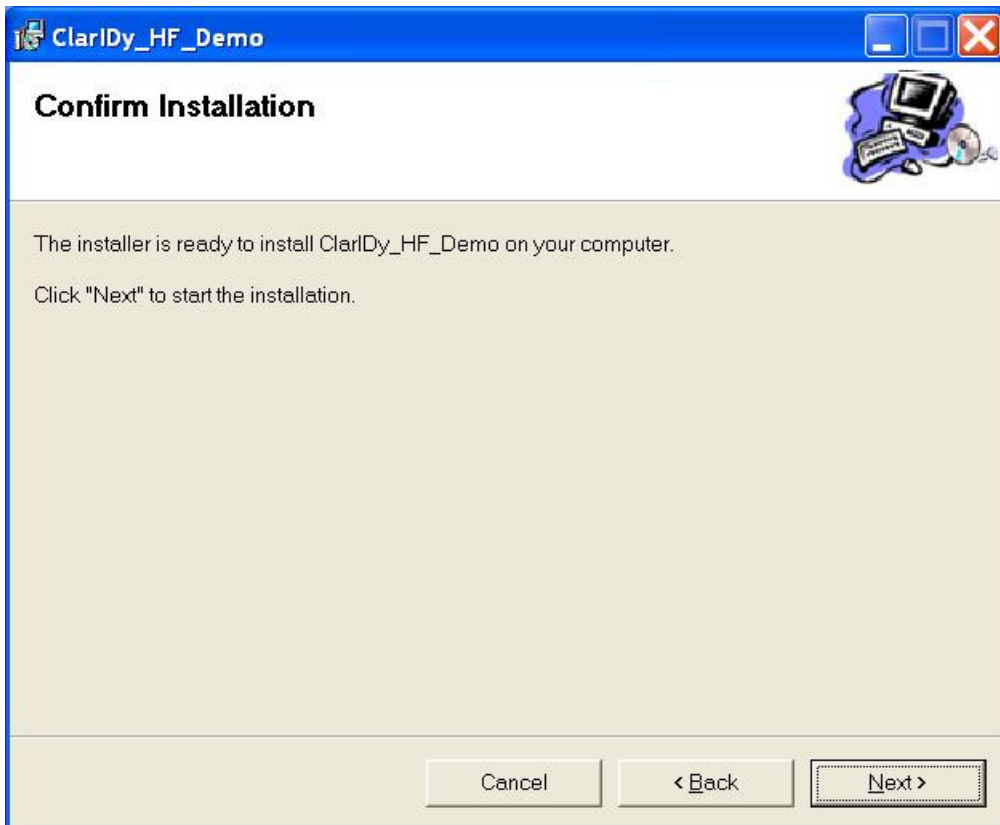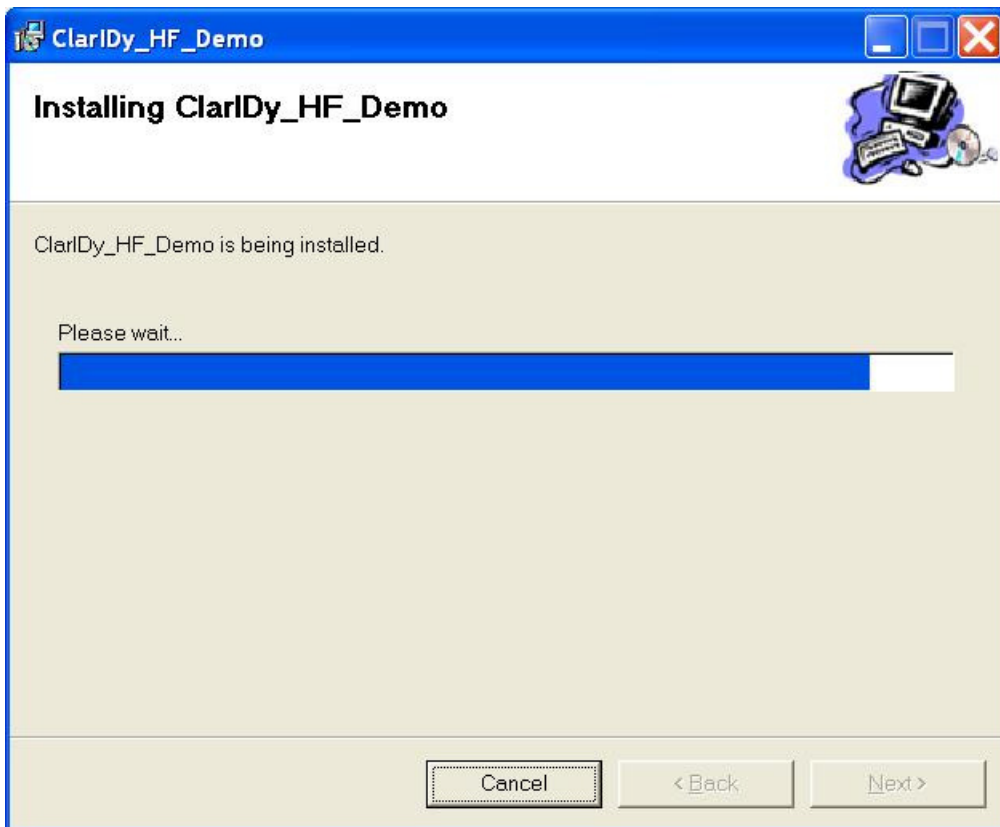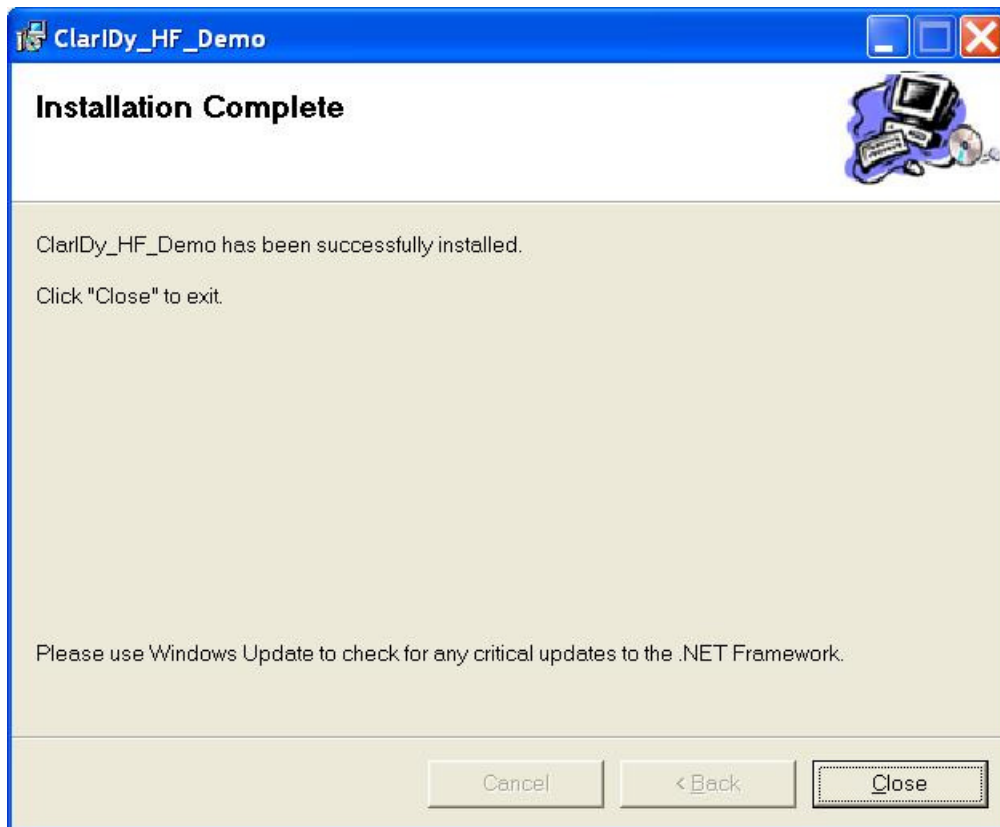
Figure 5.

Figure 6.

Figure 7.

Figure 8.

Figure 9.

3. Demo Program Operation Guide

The following sections will describe the usage of the ClarIDy HF Demo application.

3.1 Configuration Control

The main form on the left hand side is the configuration control of the ClarIDy HF RFID Reader, as figure 10. User can use this form to configure the operational environment of the Reader.
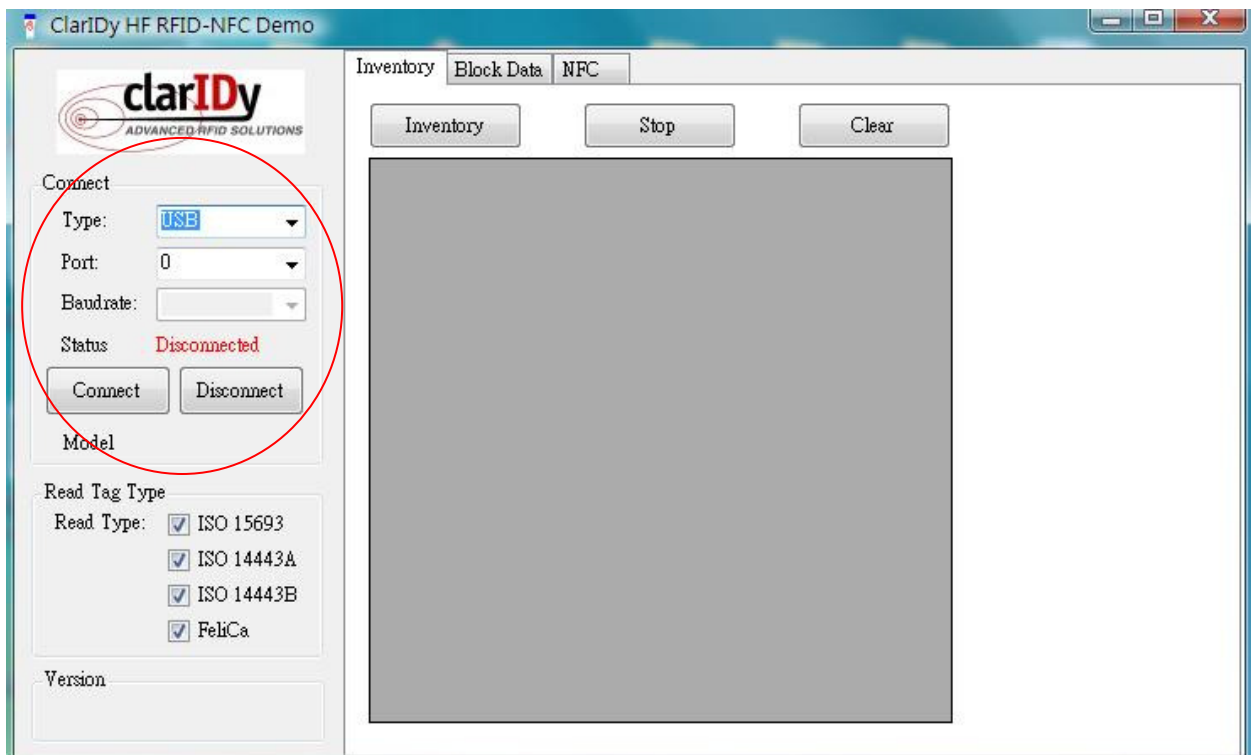

Figure 10. Configuration Control

The initial state of the Reader is "Disconnected". You can select the "USB" type and a port number such as "0" to open the USB port by clicking the "Connect" button. If the USB port opened successfully, then the "Status" will be changed to "Connected" and the version number will be shown, see figure 11. Also, user can select tag protocols that will be used to run the program. The reading speed will be faster for only one protocol is selected. Here we will only select "ISO 15693" type, we unchecked the "ISO 14443A", "ISO 14443B" and "FeLiCa" check boxes, figure 12.
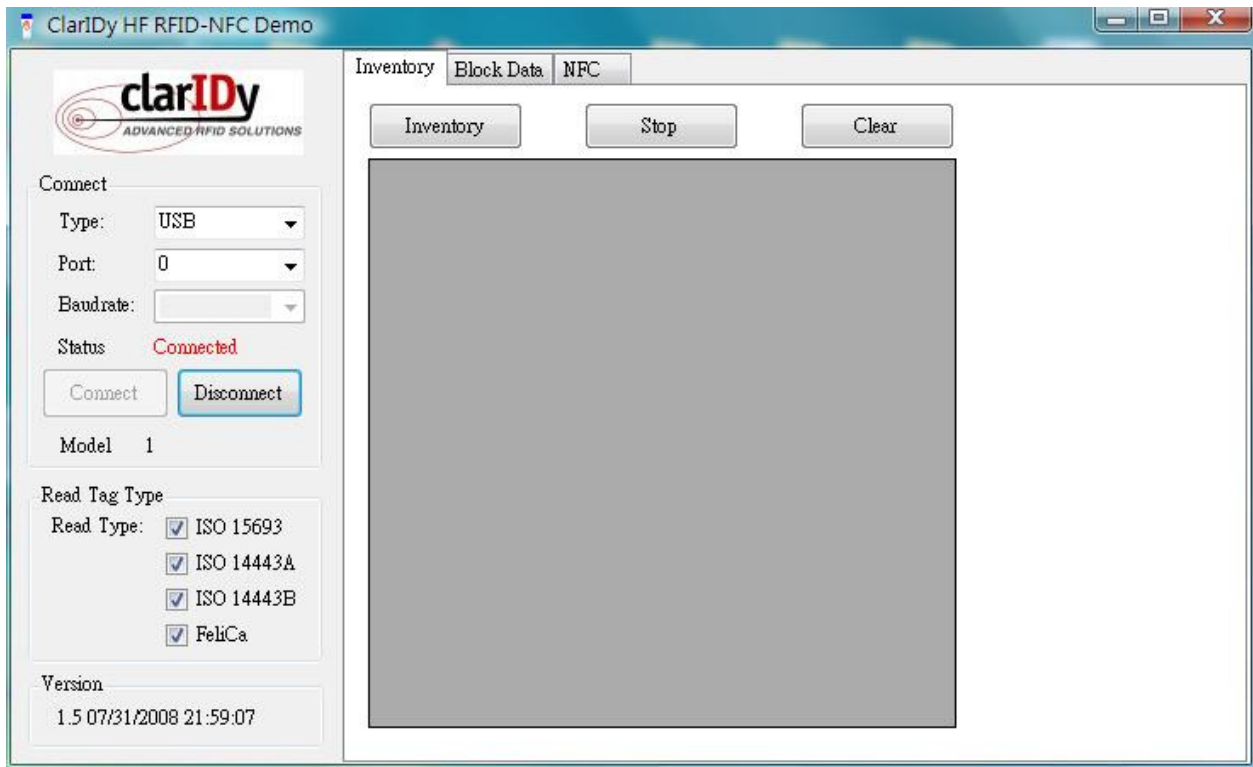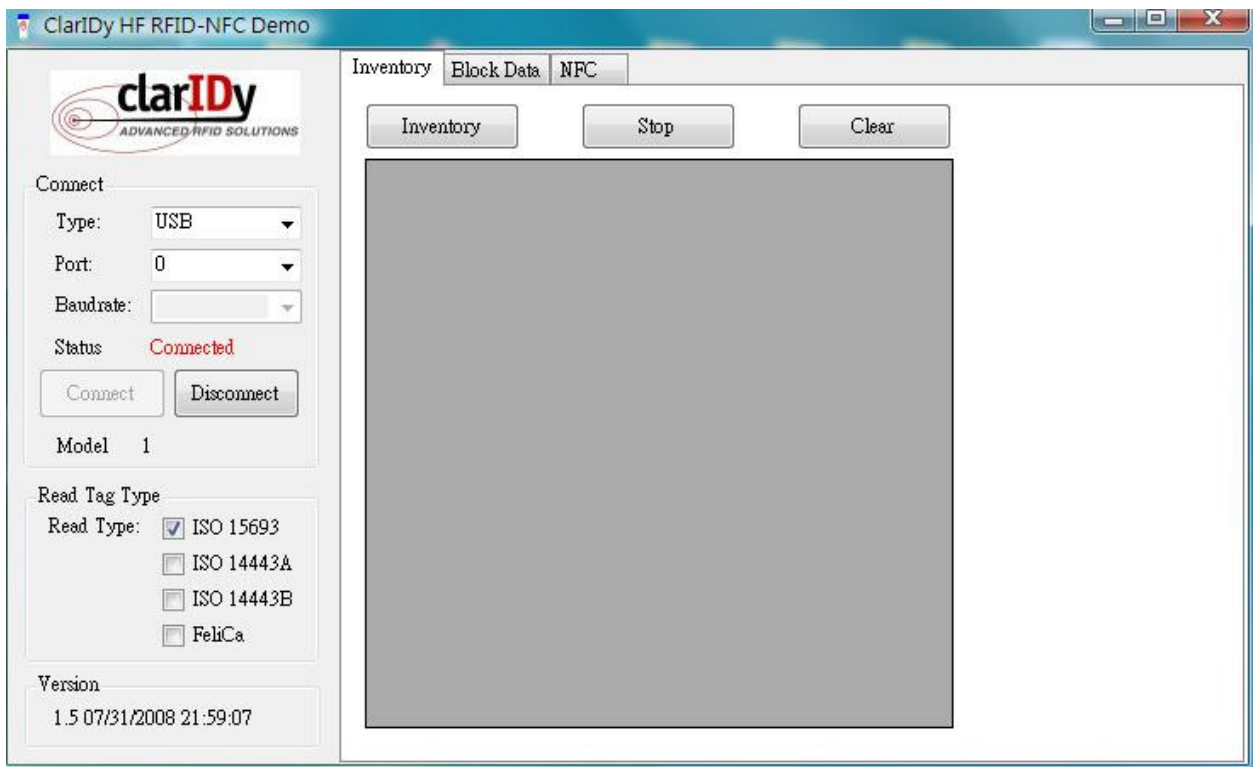
Figure 11. Connect to the reader

Figure 12. Change Protocols.

3.2 Inventory and Stop Controls

Place the "RFID tag in the RF field (less than 4 cm on top of the reader) of the ClarIDy HF RFID Reader. Click "Inventory" button to read the tag UID, see figure 13. The unique tag ID ("UID"), number of reads ("Count"), and protocol will be shown on the table. Click "Stop" button to stop it. You can clear the result by clicking the "Clear" button.
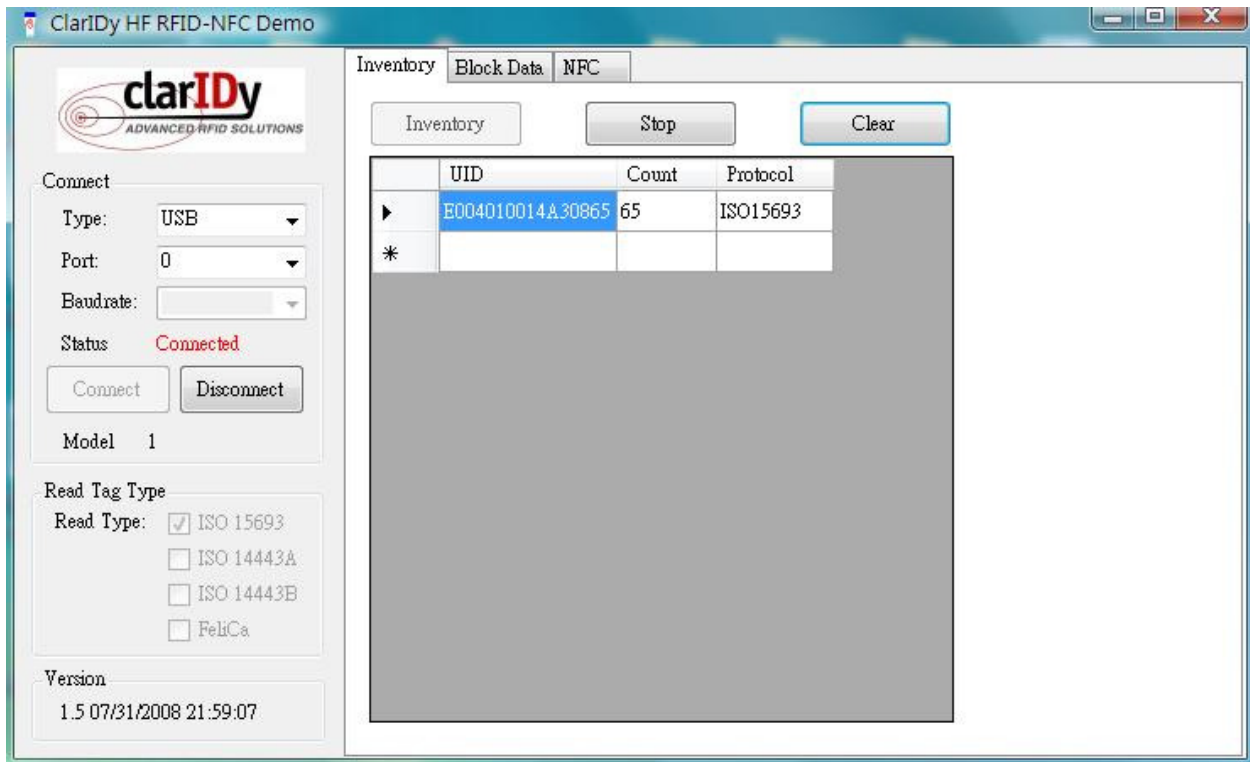

Figure 13. Inventory, Stop and Clear Controls

3.3 Block Data Control

"Block Data" is used to read/write ISO15693 Tag's block data.

There are four options for ISO15693 Tag.

➢ Normal: This is the default mode.

➢ Option Flag Enabled: If this has checked, the Option Flag (Bit 7) of the ISO 15693 defined Request Flags will be set to 1. Some tags Write commands that Option Flag must be set to 1. Ex: TI Tag.

➢ Secure: When password has been written into the tag, please checked the "Secure" and Input the Password to "PWD".

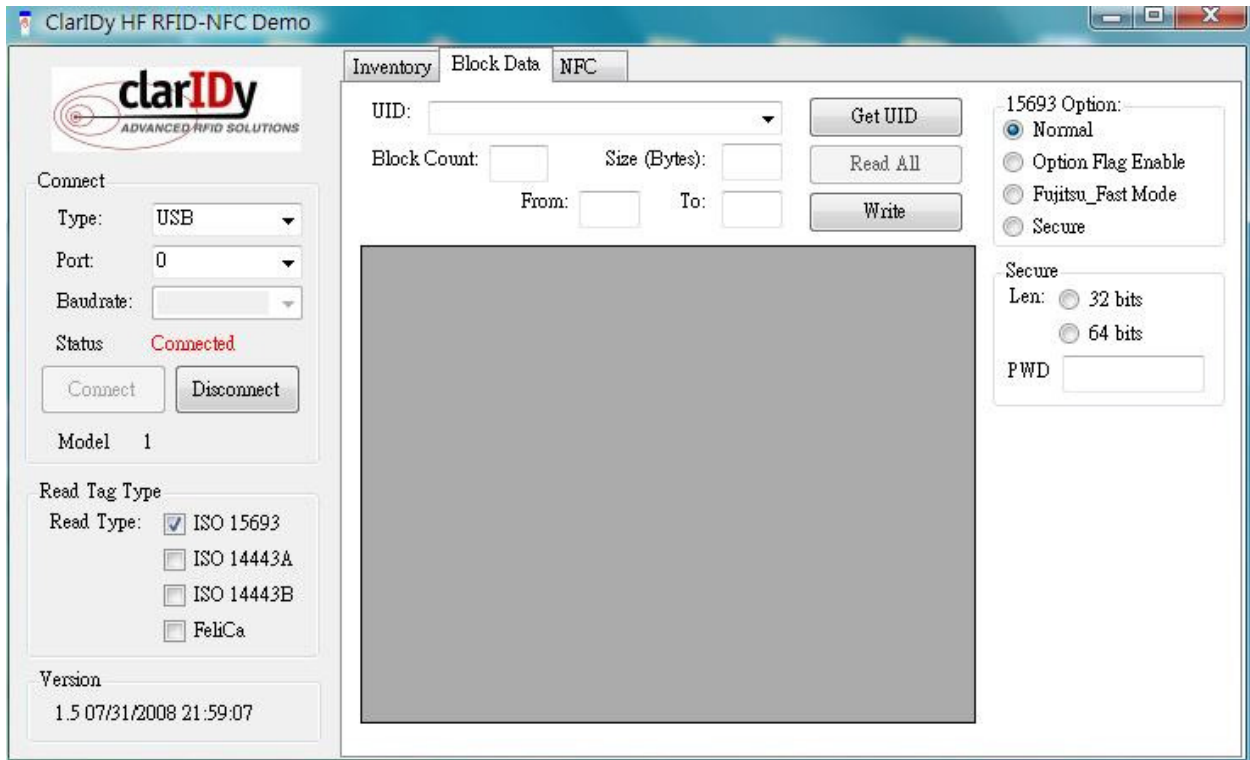➢ Fujitsu_Fast Mode: For Fujitsu tag fast mode.

Figure 14. Block Data Control

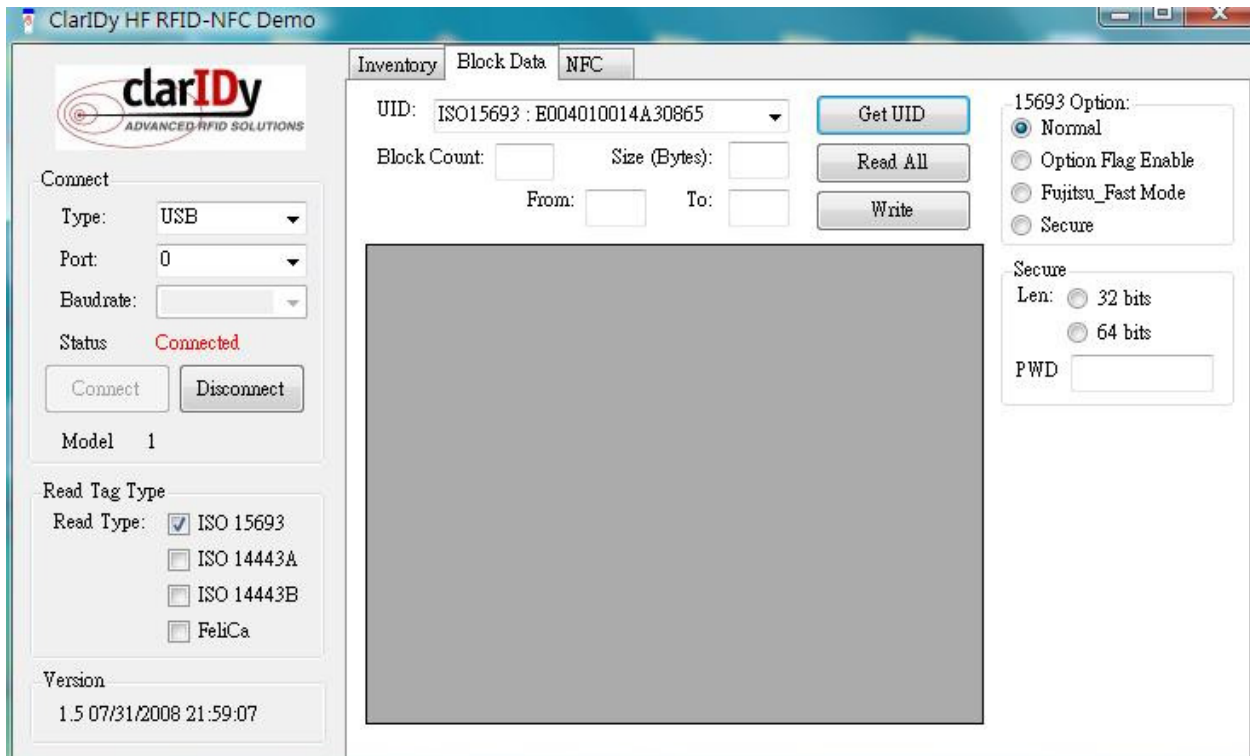**Note: To access tag data, you must get the tag UID first**, figure 15.

Figure 15.   Block Data Control (Get UID)

➢ Read Block Data

After the Tag UID is identified, you can click the "Read All" button to retrieve all block data in the tag's memory, see figure 16. If the system pops up the dialog as figure 17, suppose the tag information could not be accessed properly, enter the "Block Count" such as 27, and "Size (Bytes)" such as 4 for the ISO 15693 tag and click "Read All" again. If the error message still occurred, reduce the "Block Count" and try again.
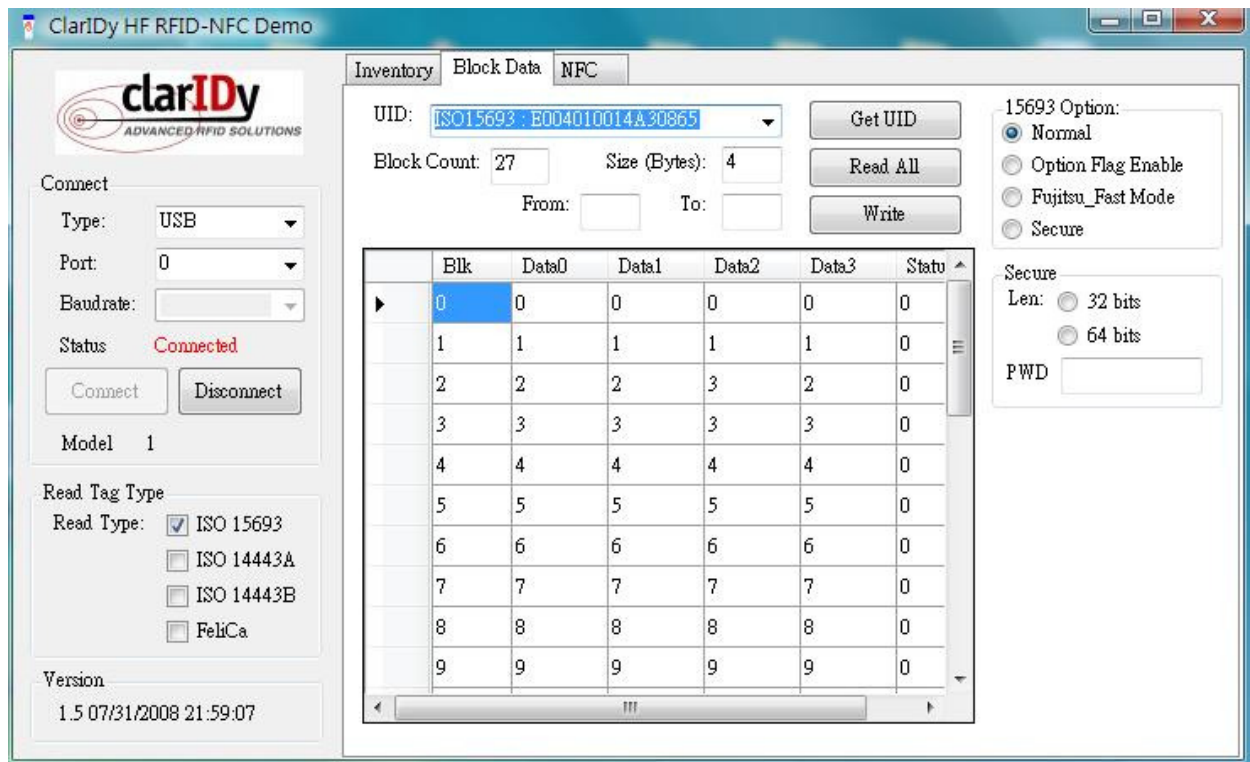

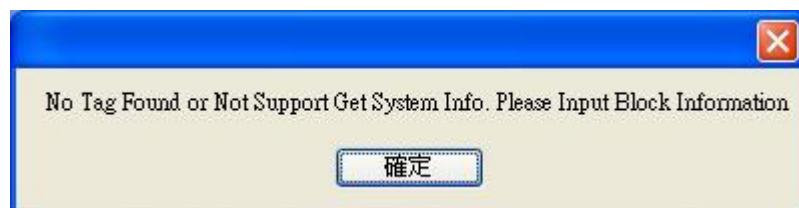Figure 16. Block Data Control (Read All)

Figure 17.   Read all block data from the tag's memory.

➤ Write Block Data

After retrieving the data from the tag's memory, user can change the contents with the "Write" function. You can change the block data values in the grid cells, input the "From" & "To" values (means: from block-3 to block-3) and click the "Write" button to write the new values into the tag's memory, see figure 18.
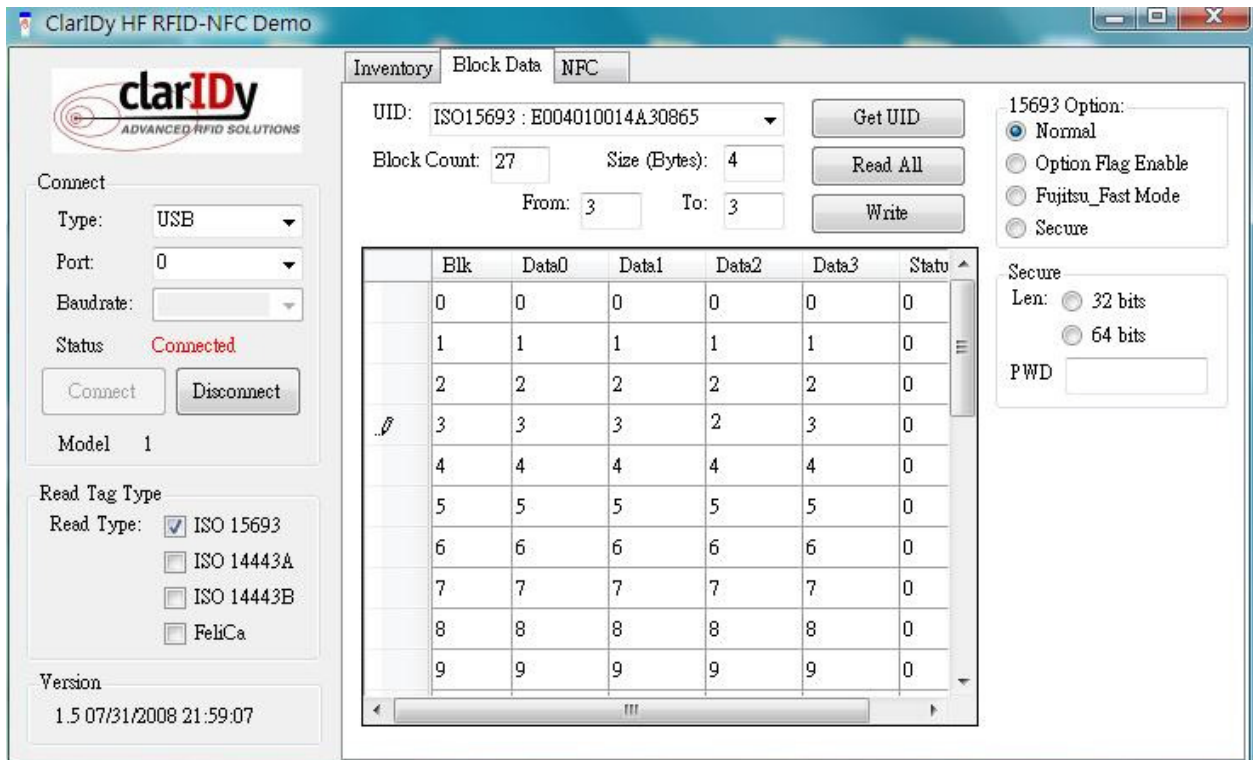

Figure 18. Update data of block-3 by "Write" function.

3.4 NFC Control

To do the NFC control, there should have two ClarIDy HF RFID Readers. Execute two "ClarIDy HF Demo" programs. Connect both of them by "Port" 0 and "Port" 1 with "USB" Type respectively. Specify one ClarIDy HF RFID Reader to do the "Send" process as figure 19 and the other to do the "Receive" process as figure 20. Define the "FilePath" on the "Receive" side and click "Receive" button for receiving. Define the "FileName" on the "Send" side and click "Send" to start sending file data.
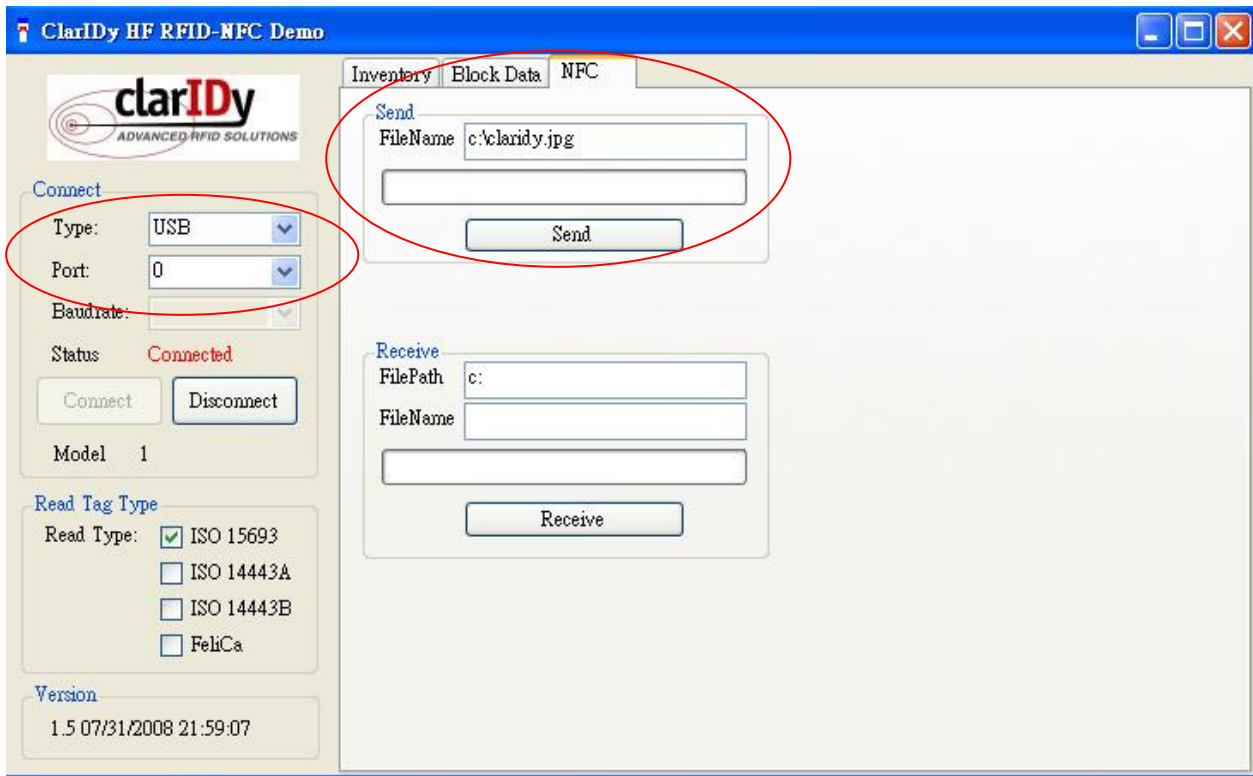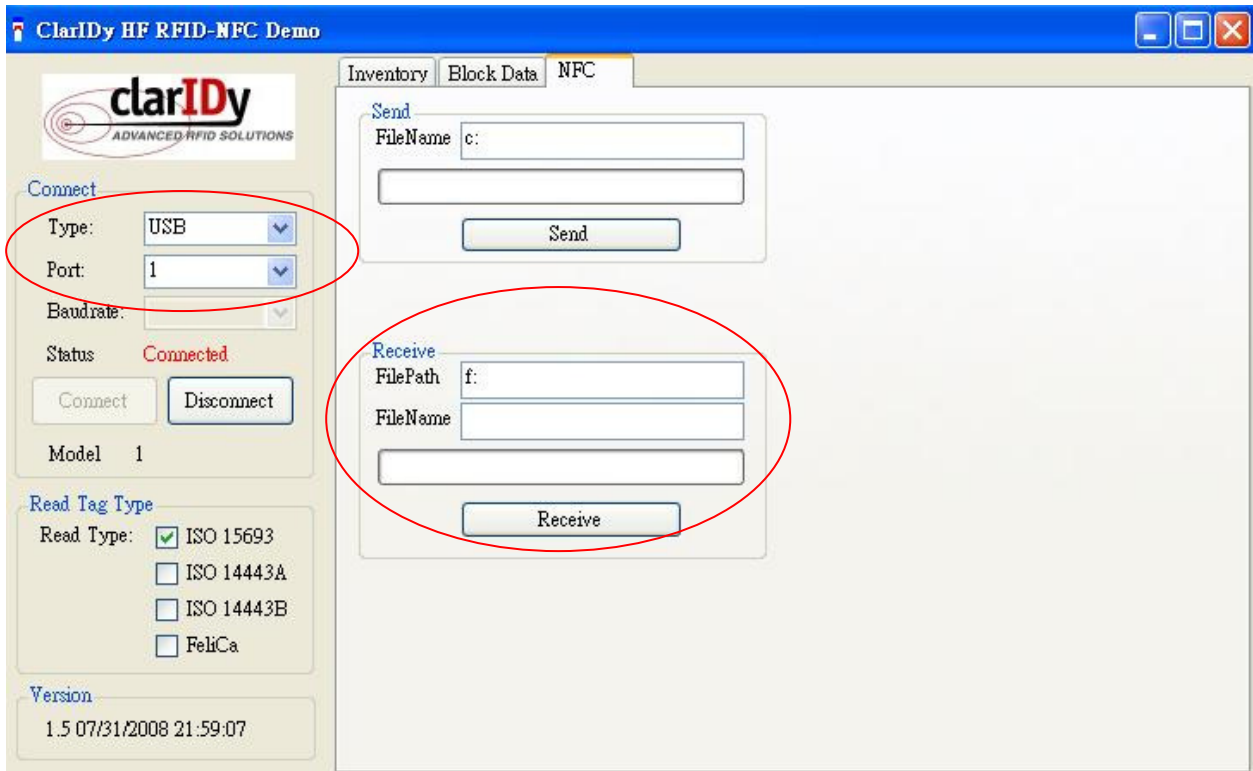
Figure 19. NFC Control on Send Side.

Figure 20. NFC Control on Receive Side.

If the file data was sent successfully, the transfer status will show "Send Success" on the Send

side. If the file type is "jpg" and receiving successfully, the transfer status will show "Receive Success", and will display the received image on the Receive side, figure 21.

Figure 21. NFC Control to display image file.

3.5 Disconnect Control

Click "Disconnect" button to close the reader connection and USB communication, see figure 22. The "Disconnect" button will be disabled and the "Connect" button will be enabled after then.
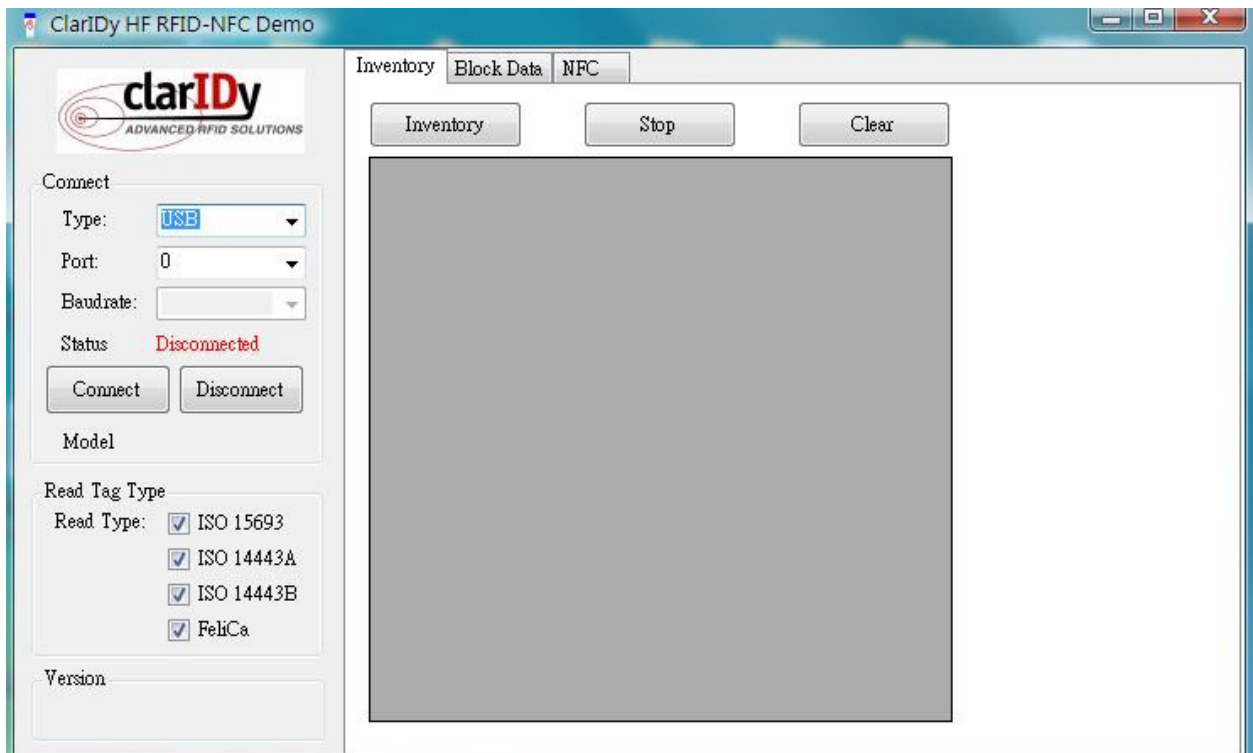

Figure 22. "Disconnect" control.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1 This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.